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ABSTRACT

Although the obligation to pay employees according to comparable work value has been made into law in some areas, little has been said about what strategies organizations can use in achieving pay equity. This study attempted to determine the effects of various strategies on overall cost in achieving pay equity. Job evaluation and salary data were obtained from two organizations. Salary data were regressed on job evaluation points for male-dominated, female-dominated, and balanced jobs. Five strategies of comparable worth salary adjustment were costed for each organization, using the male regression line as the adjustment target. These strategies were formulated as follows: (1) use male regression formula to raise only female jobs below the male line up to the line; (2) use male regression formula to raise all jobs up to the male line; (3) give female jobs below the male line a constant amount that would render the sex dummy variable for the male/female regression insignificant; (4) compute the average underpayment and give all female jobs a constant amount; and (5) use male regression formula to estimate salaries for all jobs. The results indicated that the cost burden ranged from $2,257,935 to $4,442,247 in one organization and from $3,506,635 to $7,936,521 in the other. These findings demonstrate that the choice to adopt one pay equity adjustment strategy rather than another has the potential to save organizations millions of dollars. (NB)

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Cost Impact of Alternative Comparable Worth Strategies

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Abstract

Job evaluation and salary data were obtained from two organizations. Salary data was regressed on job evaluation points for male-dominated, female-dominated and balanced jobs. Five strategies of "comparable worth" salary adjustment were costed for each organization, using the male regression line as the adjustment target. The cost burden ranged from $2,257,935 to $4,442,247 in one organization and from $3,506,635 to $7,936,521 in the other. The choice to adopt one pay equity adjustment strategy rather than another thus has the potential to "save" millions of dollars.

The State of Minnesota is unique in that it passed legislation during the 1984 biennium requiring all political subdivisions of the state (i.e., cities, counties, school districts, etc.) to pay employees according to "comparable work value". That is, where female-dominated jobs are paid less than similarly evaluated male-dominated job classes, municipalities are required to increase the wages in the female-dominated job classes. These "pay equity" increases are likely to cost in the millions of dollars over the next few years and beyond.

It is interesting to note, however, that little has been said about the kinds of strategies that organizations should or could use in achieving pay equity. Indeed, there are several possible pay strategies which may fit the intent and letter of the law but which have drastically different cost burdens on a particular municipality. It is the objective of the present research to delineate more clearly several possible pay strategies to achieve the pay equity requirements and to estimate the cost burdens of these various strategies.

Alternative Pay Equity Strategies

Given that an organization conducts a "comparable worth" analysis, finds that the regression line for female-dominated jobs differs significantly from the male-dominated regression line (where the male line is above the female line) and decides to grant pay equity increases, what are some alternative ways to achieve pay equity? There are several potential strategies which may be identified.

Strategy I. According to the State of Minnesota, what should be done is to raise the wage levels for female-dominated jobs up to the male trend line (the regression line developed only on the male-dominated jobs). This strategy has the potential impact of compressing wages considerably (because there would be no female jobs below the male line and less variation among the wages associated with these jobs). It may also have considerable cost impact; many of the jobs for which pay equity increases are proposed are high density jobs.

Strategy II. Raise the wage levels of all jobs (female-dominated, male-dominated and balanced jobs) which are below the male trend line. This strategy has been entertained in order to insure that the pay equity increase method is not on its face discriminatory because of only dealing with female jobs (disparate treatment). Such a strategy has an even greater potential cost burden because it involves raising wages for an even greater number of job incumbents.

Strategy III. Raise the wage level for female-dominated jobs but only to the point where there is no significant difference between the regression lines. This has a potentially lower cost burden because presumably the cost increases would be less than if brought to the male line.

Strategy IV. Instead of assuming that all female jobs must be brought up to the male trend line, another interpretation of the law is that the average wage level for the male- and female-dominated jobs should be the same at any given point value. That

is, the distributional properties of the male- and female-dominated jobs around the wage trend line should be similar. This objective could be met by giving a constant wage increase to all female dominated jobs such that the entire distribution of these jobs is "pushed up".[1]

What are the actual cost burdens associated with each of these four strategies? To investigate this issue we conducted cost estimation procedures using data from two organizations.

Method

Job evaluation and salary data were obtained from a metropolitan city and medical center. Both data sets included a full range of positions (343 city classifications and 131 hospital classifications) representing diverse occupational families. The number of incumbent employees in each classification varied widely, from 0 - 673. The compensation and job evaluation policies had been well-established in each organization prior to our study.

The personnel department in each organization furnished the following information for each classification:

-- midpoint of current salary range
-- number of full-time equivalent employees
-- total points using organization-wide job evaluation system

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[1] Another possible strategy which could achieve the same objective with a lower cost burden would be to give lower wage increases to more highly populated female-dominated jobs while others receive higher increases. The averages for the two groups, though, would be approximately equal. This strategy has some obvious problems.

The sex assignment of classifications followed the formula used in the Minnesota comparable worth legislation, as follows:

-- male-dominated if women held less than 20% of the jobs
-- female-dominated if women held 70% or more of the jobs
-- balanced if women held between 20% and 70% of the jobs

The data set for each organization was analyzed using SPSS (Statistical Package for the Social Sciences) on the Cyber computer at the University of Minnesota. The salary midpoints were regressed on the total points to estimate an overall regression equation as well as separate regression lines for male-dominated, female-dominated and balanced classifications. Male and female job data were combined for an additional regression which included a dummy variable to represent the predominant sex of each job. The regression lines for each organization appear in Table 1.

Insert Table 1 about here.

Each regression line shows a different intercept and coefficient for total points. From a comparable worth perspective it would appear that each organization tends to "undervalue" female-dominated jobs. The female regression line for each organization has a lower slope and intercept than most of the other regression lines. The significant coefficient for the sex dummy variable shows that when we hold job evaluation points constant, male-dominated jobs are paid more than female-dominated jobs in each organization. On average, females are "underpaid" by $231 per month in the medical center and $366 per month ($169 biweekly) if they work for the city.

The proportion of salary variance explained by each regression line in our study varied from .85 to .90 for the medical center and from .78 to .94 for the city. The low value of .78 for the city's male-dominated regression line indicates a potential lack of fit. The rate of increase in the slope coefficient over the range of job evaluation points was investigated by adding a squared term for job evaluation points to the regression; the statistical significance of this term ($p = .0301$) in the city's male regression line confirmed that job evaluation points are an imperfect linear predictor of male salaries in this organization.

When jobs and pricing strategies are compared to determine whether pay equity adjustments may be necessary, the first step often involves identifying a target pricing line. We used the male regression line as the pay equity target for each organization. All female-dominated jobs in the city and 70% of the female-dominated jobs in the medical center fell below the male line. Some balanced and male-dominated jobs in each organization also fell below the male line. The issue of pay equity adjustment involves consideration of <u>which</u> classifications to adjust, as well as <u>how</u> <u>much</u> to adjust and <u>when</u>.

Five pay equity adjustment strategies were developed as alternatives for organizations to consider in light of comparable worth legislation. These strategies are described below. Although conditions of "overpayment" as well as "underpayment" obviously may exist in organizations, we concentrated on remedies for the "underpayment" condition in this study.

1. Use male regression formula to raise only female jobs below the male line up to the line.

2. Use male regression formula to raise all jobs (male, female and balanced) below the male line up to the male line.

3. Give all female jobs below the male line a constant amount that would render the sex dummy variable for the male/female regression no longer statistically significant (p-value at least .0501).

4. Compute the average underpayment and give all female jobs a constant amount. (The amount we used as a constant came from the value of the sex dummy variable for the male/female regression.)

5. Use male regression formula to estimate salaries for all jobs. All jobs below the male line would be raised to the line, and all jobs above the male line would be lowered to the line.

These five strategies were costed for each organization by computing the wage change for each job and multiplying this amount by the number of incumbents in each job. The costs (and also the "savings" using Strategy #5) were summed over jobs to calculate a total annual cost for each type of pay equity adjustment, by organization. The results are shown in Table 2.

Insert Table 2 about here.

The two organizations employed approximately the same number of workers (2,207 and 2,329) and had similar annual cost budgets (approximately $51 million). However, the different mix of male- and female-dominated jobs in each organization produces very different pay equity adjustment burdens. The pay equity adjustments are approximately twice as costly for the medical center, where 70% of the jobs were female-dominated; in compari-

son, only 20% of the city jobs were female-dominated.

Strategy #2 (raising all jobs below the male line to the line) is the most costly strategy for each organization. This strategy may avoid Strategy #1's appearance of reverse discrimination, but it will not achieve "pay equity" in terms of eliminating sex differences in pay. When the adjusted salaries resulting from Strategy #2 were regressed on male and female data, the sex dummy variable continues to be statistically significant.

Strategy #5 demonstrates that the costs of Strategy #2 could be partially offset by lowering all jobs above the male regression line to the line. The cost reduction is more dramatic for the city (Strategy #5 saving $1.9 million from the cost of Strategy #2) than for the medical center (where only $0.5 million was saved).

The least costly approach for each organization is Strategy #3. However, this approach may not fully comply with the intent of comparable worth legislation. Since it is based on a statistical premise, the approach is also very susceptible to slight changes in the data. Changes in the predominant sex of particular jobs or minor salary changes are likely to render Strategy #3 a short-term solution at best.

Adding a constant to <u>all</u> female jobs (Strategy #4) is less costly than bringing female jobs below the male line to the line. This strategy preserves the distributional properties of the data, but may be particularly vulnerable to charges of reverse discrimination.

Summary and Conclusions

The differences in the costing strategies are quite dramatic. The most costly strategy for each organization is two or three times as expensive as the least costly strategy. Yet either strategy could meet the requirements of particular comparable worth legislation. The implications of adopting a particular strategy are complex, and may produce a variety of outcomes beyond the dollar costs we have summarized. We suggest that the issues discussed below need to be evaluated by the organizational decision-makers who are formulating a pay equity adjustment strategy.

What "target" regression line should be used?

An adjustment target, such as the male regression line, may not be the target necessarily mandated by comparable worth legislators. Inasmuch as the cost burdens may differ greatly between adjustment targets, at least one other target (the common regression line) should be investigated and evaluated. The male regression line is likely to have a higher slope than the female or combined regression lines; adjustments to a higher line are likely to be more costly. Although any adjustment target might appear to be a "moving" target over time, the male regression line may move more than a common line. Continual adjustments might be required in order to maintain equitable pay relationships with a fast moving target. The need for continual fine-tuning represents a long term cost for the organization.

The question of which jobs to include in computing the target regression line is an important one. Some organizations

choose to exclude high-level jobs (usually male-dominated) from their "organization-wide" regression line to produce a better fit for the majority of jobs in the organization. Other types of jobs are also commonly excluded, such as classifications without any (or with only a single) incumbent employee or classifications with anomalous characteristics (e.g. data processing or highly specialized technical jobs which have experienced persistent labor supply shortages). The regression slope will generally be lower after these higher-paid jobs are excluded.

A related question involves the role of external market comparisons. Some organizations choose to include only "key" jobs (with identifiable counterparts in other organizations) in computing their pay policy line. Other organizations base their pay policy lines exclusively on external data (usually pooled from a variety of organizations using a common job evaluation system). These practices may be contrasted to the inclusion of all jobs within a single organization to compute a pay policy line that is organizationally specific. The importance of market comparisons in the determination of pay policy clearly varies by organization.

Most pay policy lines are based on the relationship between classifications. The number of job incumbents in particular classes is not considered to be relevant to the determination of a pay policy line. However, pay adjustments vary in direct proportion to the number of incumbents in the affected classifications, and organizations may wish to consider adopting some sort of weighted regression strategy to reflect the true nature

of the underlying population of incumbents. Jobs with relatively more incumbents would be weighted more heavily, and a common regression line is likely to be drawn more closely to such classifications.

A final issue related to the slope of the regression line is whether or not that slope really does represent a truly constant relationship between market value and job evaluation points. Although a consistent relationship along the entire job evaluation scale may be desirable, it does not appear to reflect the curvilinear reality found in many organizations. The fact that some jobs are compensated at a higher rate than would be warranted by their job evaluation rating indicates that there may be a need to identify additional job evaluation factors to account for this added value. Alternatively, there may be different functional relationships between job evaluation points and market value at different points on the job evaluation scale; such an inconsistent relationship may be difficult to rationalize and more difficult to justify politically in the comparable worth environment.

We should also note here that the regression slope is subject to change over time. The pay/point relationship is likely to be affected by changes in market conditions as well as by changes in the mix of organizational jobs. If pay equity adjustments are made which change the salaries for some classes, the common regression slope may increase or decrease. Thus, the relationship between salaries and job evaluation points is not really constant; it changes to reflect the market value fluctuations of an organization's job valuation policy.

How and when should which classifications be adjusted?

The mix of jobs above and below the target line has important cost implications. Although adjusting only female jobs below the male line might be least costly, such a strategy might lead to charges of reverse discrimination. However, if all jobs below the male line are adjusted, we found that significant differences would remain between the salaries of male vs. female-dominated jobs. Adjusting only the jobs below the line without adjusting the higher-paid jobs is likely to produce a "moving target" scenario, with the male regression line continuing to lie above the female-dominated or common regression lines after the first round of pay equity adjustments were made.

As noted before, the number of incumbents in the affected classifications will determine the actual cost burden of the pay adjustments. It may be desirable to implement the adjustments over a period of time, or implement them more slowly for the most populous classification in order to reduce the short term costs. Collective bargaining agreements are sometimes "backloaded" like this to delay the full impact of wage increases. In fact, this is what occurred in one of the organizations we studied.

The question of how adjustments should be made involves philosophical as well as practical considerations. For example, how much variation in a common regression line should an organization tolerate? If some jobs have been excluded from computing the regression line and the focus is mainly on adjusting jobs below the line, organizations are clearly willing to tolerate

some variation. Partial adjustment strategies (such as adding a constant) would produce greater variance than adjusting all jobs to the male regression line, but this variance may be justifiable if it results in a lower cost burden.

When adjustments are made to particular classifications, the functional relationships established between related occupations in an organization are likely to be upset. Such changes may have dysfunctional consequences. Employees who are negatively affected by the changes may be dissatisfied and this may lead to an increase in turnover or reclassification requests. The cost burden of pay adjustments may differentially affect certain departments within an organization, leading to the hiring of fewer replacements.

If the pay for some classifications is reduced, this could affect the ability of an organization to recruit adequately qualified individuals. On the other hand, an organization may be able to attract better qualified applicants for jobs which have received pay increases.

The "comparable worth" idea of valuing all jobs using a common metric may be conceptually simple. However, we have shown that there are many complex philosophical and operational questions which must be addressed before pay equity adjustments can be made. We have shown that different strategies can produce dramatically different cost burdens. However, the implications of various strategies also go beyond the actual dollar costs of particular adjustments. We believe that organizations should seek to identify and evaluate all potential ramifications of pay equity adjustments before they are implemented.

Table 1
Regressions of Salary Midpoints[a] on Job Evaluation Points[b]

Regression Lines	Sample Size	R^2	F	Constant	Point Coefficient	Sex Coefficient
Medical Center Classifications						
Male-dominated	21	.90	178.1	1,026.08 (115.63)	193.69 (14.51)	--
Female-dominated	91	.85	506.8	995.51 (50.71)	165.66 (7.36)	--
Balanced	19	.90	148.0	795.25 (113.41)	221.95 (18.24)	--
Male- and female-dominated	112	.87	369.7	961.96 (46.64)	171.05 (6.63)	231.22 (50.86)
Combined	131	.85	720.1	955.34	180.62	--
Metropolitan City Classifications						
Male-dominated	244	.78	841.2	395.88 (25.67)	1.96 (0.06)	--
Female-dominated	67	.92	726.6	181.25 (22.95)	2.11 (0.08)	--
Balanced	32	.94	451.8	194.64 (31.13)	2.21 (0.10)	
Male- and Female-dominated	311	.85	884.2	218.93 (20.33)	1.98 (0.06)	168.90 (14.88)
Combined	343	.81	1421.4	257.75 (21.15)	2.23 (0.06)	--

Note: For all variables, the probability levels are $p < .0000$ for the tests of significance. Numbers in parentheses are standard errors.

[a]Salary midpoints for medical center classifications were based on monthly rates, while midpoints for city classifications were based on biweekly rates.

[b]Each organization used a different job evaluation point system.

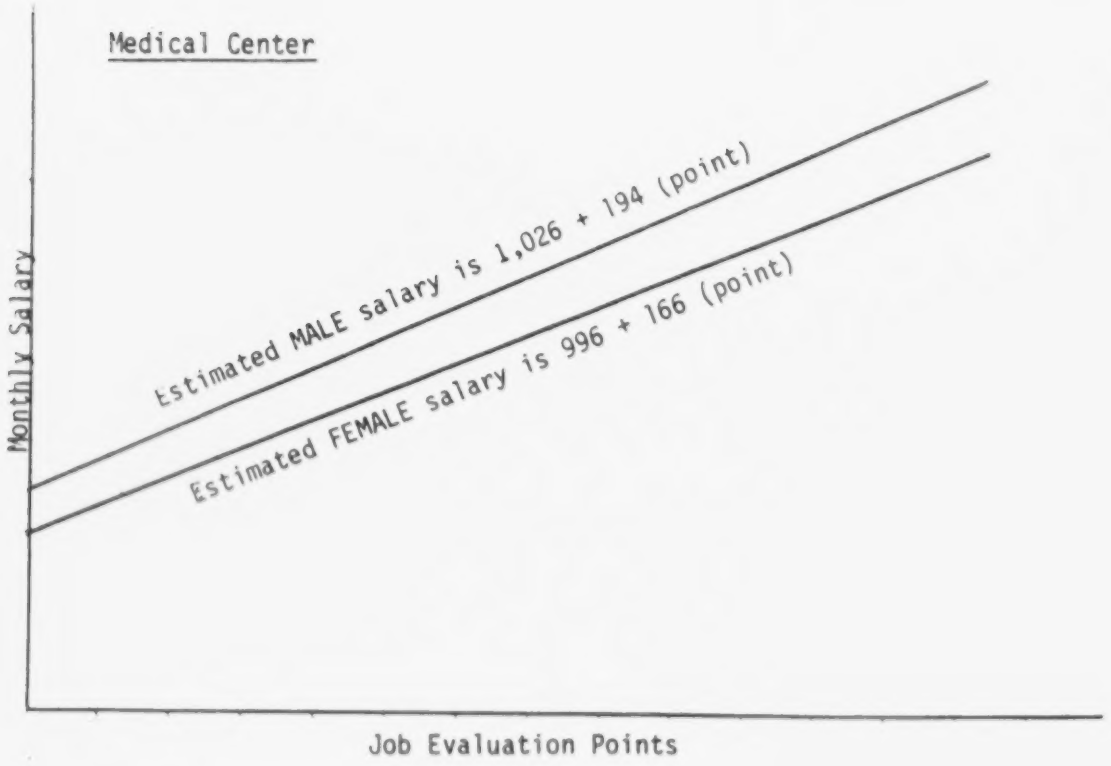
[c]Dummy variable equal to 1 if male-dominated, 0 if female-dominated.

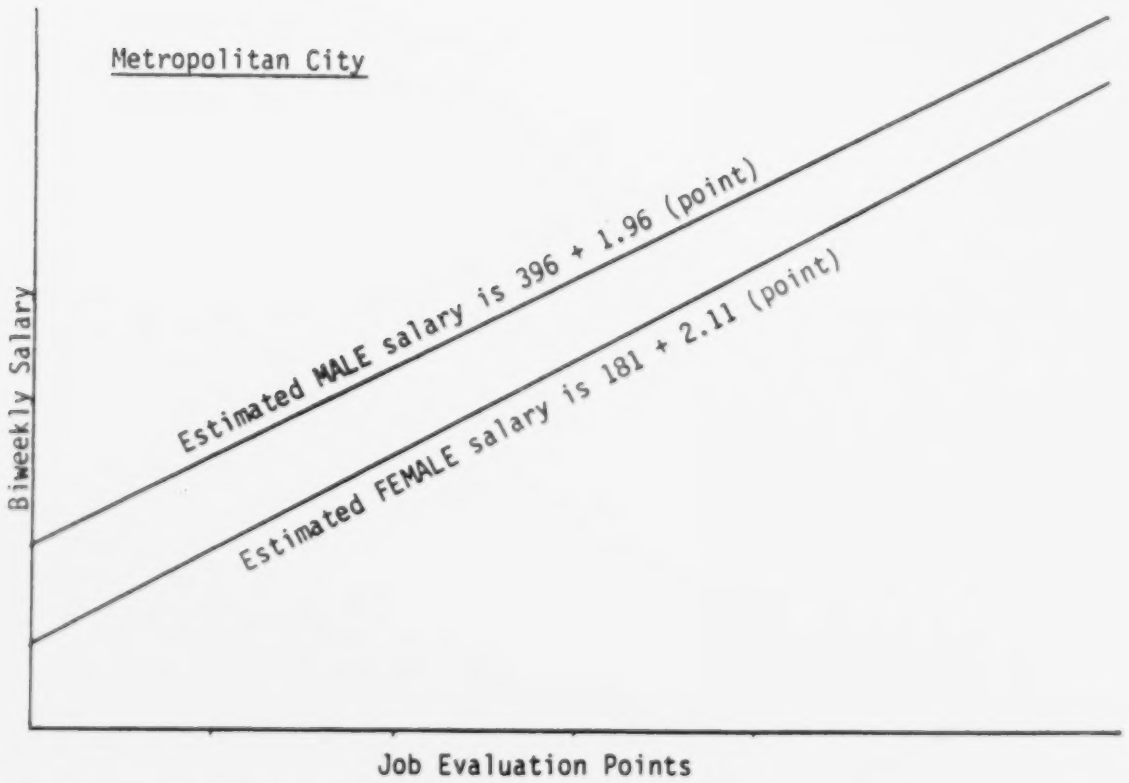
Table 2
Organizational Costs to Implement Pay Equity Strategies

	Organization	
	Medical Center	Metropolitan City
No. of full-time equivalent employees	2,207	2,329
No. of male-dominated classifications	21	244
No. of female-dominated classifications	91	67
No. of balanced-dominated classifications	19	32
No. of total classifications	131	343
Current Annual Cost	$51,632,389	$51,489,542
Annual Cost Increase		
Strategy 1	$7,217,275	$2,863,503
Strategy 2	7,936,521	4,442,247
Strategy 3	3,506,635	2,257,935
Strategy 4	5,095,696	2,731,451
Strategy 5	7,446,737	2,536,281

Note: Salary costs were estimated using the midpoint of each salary range. The actual cost to the organization will depend on where employees currently are in their salary ranges, and how adjustments are made within salary ranges.

REGRESSION LINES FOR MALE- AND FEMALE-DOMINATED CLASSIFICATIONS


Medical Center
Monthly Salary
Estimated MALE salary is 1,026 + 194 (point)
Estimated FEMALE salary is 996 + 166 (point)
Job Evaluation Points


Metropolitan City
Biweekly Salary
Estimated MALE salary is 396 + 1.96 (point)
Estimated FEMALE salary is 181 + 2.11 (point)
Job Evaluation Points